



In this month's edition of the newsletter, we take a look at the role of technology and the influence it can play in individuals' and organisations' thinking. The rapid expansion of technological growth has led to an increase in our reliance on computers, and using them as a substitute for some of our own thinking.

NEW COURSES:

The Defence Thinking Skills Programme will be running **a one-day course on Thinking Skills** on two dates in 2015: 22nd April and 7th July. The course will cover: Making effective use of your intelligence; enhancing creative thinking; avoiding thinking errors; sharpening mental acuity and collective thinking at the organisational level. It is an applied course providing pragmatic approaches to enhancing thinking, and it is open to Military and Civil Service Defence personnel at all levels. A varied cohort is particularly sought as it brings benefits for creative thinking. If you wish to reserve a place, please contact **defac-tsp-admin@defenceacademy.mod.uk**

RUPERT SMITH TALK ON THE VLE

We are pleased to announce that the interview with General Sir Rupert Smith that took place in Beckett House on the 5th Nov is now available on the Cranfield VLE*. He discusses his diagnosis of thinking during military operations, including topics such as: why it is important to think about thinking; examples of appreciation from Zimbabwe and the Gulf; generating organisational mobility; collective thinking and HQ structures; retaining open-mindedness; using opponents' thinking, using context to influence thinking; testing your thinking.

General Sir Rupert Smith has had a distinguished career in the military and a wealth of experience including Deputy Supreme Commander Allied

Powers Europe 1998-2001, general Officer Commanding in Northern Ireland, 1996-1998; Commander UNPROFOR in Sarajevo, 1995; the Assistant Chief of Defence Staff for Operations, 1992-1994; and General Officer Commanding 1 (UK) Armoured Division, 1990-1992, including the Gulf War. The interview includes many interesting stories and anecdotes .

*To access the VLE, please go <https://vle.cds.cranfield.ac.uk/>, Click 'Getting Started for Students', login as a guest, click on the 'Thinking Skills' link and then the 'Defence Thinking Skills Programme' link to access the resources

THINKING WITH BIG DATA

Information technology and techniques allow us to collect and process increasingly large amounts of data. The data can be collected in many ways, often from digital footprints. These large collections of data are very useful, as we can look for patterns and symptoms much more widely than ever before. The data are samples of the real world, just as the perceptions that humans acquire through their own senses are samples. Samples are by definition incomplete representations of the world. But an important difference between humans and technology lies in the way that incompleteness is dealt with.

Human thinking has evolved to deal with incomplete information by using inference. Through understanding context, humans can infer likely meanings. Big Data techniques have no ability to understand context or incompleteness, but they can test whether meanings hold true for data samples. Here we have the opportunity for humans to add meaning to Big Data by contextualising the data, while technology can evaluate human inference within the Big Data. Collection of samples. In this way the biases

arising from each can be counter-balanced by the other. This can be very powerful, but there is a risk that thinking with Big Data will not develop in this way. Many people treat Big Data as if it were the 'real world', rather than an incomplete representation of it. And the human ability for creative inference can be neglected in the pursuit of analytical techniques.

HYBRID THINKING: HUMANS AND TECHNOLOGY



Throughout time people have sought out tools and technology to help extend their thinking capabilities.

Over time, technology has steadily improved and particularly in recent history it has leapt forward to the extent that technology such as computers can now perform a large part of our thinking for us. The majority of people's daily lives are now in some way affected by technological thinking, whether it be in a personal or occupational setting. This increase in technology is inadvertently breeding a new form of thinking, a sort of hybrid between human and technological thinking. This hybrid can develop in many ways, some which will be beneficial, but some which may result in humans losing insight and understanding.

One area that computers are clearly quicker than humans is in the handling of data such as sorting, filtering and calculating. They can even be programmed to learn and adapt. Perhaps the key human capability to think that computers cannot match, is understanding information from a wide range of different sources. As far as we know, this understanding comes not just from information, but from the cognitive activities that make use of this information. Computers may be quicker and more efficient at analysing and sorting numbers, but when it comes to creativity and ideas, the human mind is more powerful. There

is no doubt that combining the strengths of humans and technology could help to maximise thinking power and this is the aim of hybrid thinking. When this interaction between technology and humans goes wrong, it can have devastatingly fatal effects. Worldwide-known nuclear accidents such as Chernobyl and Three-Mile island can be traced back to human error from misreading output and not thorough checks of technological systems.

THE TEASER SECTION:

Last month, we told you there were 6 eggs in a basket and that 6 people each took an egg yet there was still an egg left in the basket. The solution to this teaser is that the last person took the basket with the last egg still inside it.

NOVEMBER'S TEASER:

In the nativity, David played a shepherd, The angel was played by Isobel. Greg was a king, Hayley played Mary and Gareth took the part of Joseph.

Was it Tom or Toby who played the donkey?

The solution will be posted in next month's edition.

CONTACT US:

If you've enjoyed reading this and wish to be added to the monthly mailing list or have any general feedback, please feel free to contact us.

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